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USSR REPORT  
CONSTRUCTION AND RELATED INDUSTRIES

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## CONSTRUCTION PLANNING AND ECONOMICS

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### USSR GOSSTROY DIVISION CHIEF DESCRIBES PLANNING GOALS

Moscow PROMYSHLENNOYE STROITEL'STVO in Russian No 10, Oct 82 pp 16-18

[Article by V.G. Korshunov, deputy chief of Department of Model Planning and Organization of Planning-Research Work of Gosstroy USSR: "Basic Directions for Improvement of Planning Work in Construction"]

[Text] The successful fulfillment of capital-construction plans and effectiveness of capital investment depend directly on the organization of planning-estimate work. Planning acts as a basic conductor of the achievements of science and technology as well as of technical policy and progress in the perfected organization of production and construction.

Boosting of effectiveness of capital investment and production, reducing time and cost of construction and reducing the volume of PIR [proyektno-izyskatel'skikh rabot--planning-research work : ]--these are first-priority tasks facing planners. Plans should be made in shorter time periods, ensuring the timely accomplishment of construction.

Quality of plans in terms of the technical-economical decisions adopted in regard to them should match the best examples of domestic and foreign construction and contribute to the achievement of economic and social gains in the national economy through introduction into production of more modern conditions and methods of work, ensuring its productivity growth.

Tremendous creative labor on the part of planners is embodied in the construction of very large electric-power stations, big-capacity petroleum and gas pipelines, transport arteries, modern enterprises of various sectors of industry, hundreds of millions of square meters of housing and many facilities of social and cultural-consumer designation.

At the same time, many defects in planning and estimating work have still not been eliminated. There should be included among basic defects the fact that planning of planning and research work has been poorly tied in to capital-construction plans and prospects of development of sectors of the national economy and industry. At the same time, the inclusion of facilities in projected planning requires extended validation and coordination with interested organizations and planning organs.

Estimated cost of construction, determined in detail in fixed prices, has lost its reliability inasmuch as the development of scientific-technical and social progress has not been taken into consideration in its working out. Because of this, enterprises erected according to such plans are frequently found technically backward at the time of their startup. Many complaints have been and continue to be leveled at the large number of normative documents, which are constantly being supplemented and refined and also at the long delays in employing scientific-technical achievements and advanced experiences, holding back the creative initiative of planners.

The material-technical base and technical equipment of planning and research organizations lag behind modern requirements. A whole series of other significant defects has existed and still exists for the elimination of which a decree of the CPSU Central Committee and the USSR Council of Ministers No 312 adopted in 1981 is aimed. In fulfillment of the indicated decree, Gosstroy USSR and Gosplan USSR jointly with ministries and departments and councils of ministers of union republics have outlined and are carrying out a broad program of measures for the elimination of existing defects and for the further improvement of planning and estimating work.

Gosplan USSR has approved methodological instructions on the composition, manner of working out, coordination, approval and refinement of schemes of development and location of sectors of the national economy and sectors of industry and schemes of development and location of productive forces for economic regions and union republics.

USSR ministries and departments have approved for the 11th Five-Year Plan sectorial basic directions of planning of enterprises, buildings and structures; plans for raising of the technical level of sectors provide targets for the use of scientific-technical achievements in plans of enterprises and structures. Progressive specific indicators of cost and material intensiveness have been essentially worked out for construction projects.

Gosstroy USSR has approved and put into effect a number of normative, instructive and methodological documents. In particular, the "Instruction on the Composition, Manner of Working Out, Coordination and Approval of Planning and Estimating Documentation for the Construction of Enterprises, Buildings and Structures" (SN [Construction Norms] 202-81\*), which is a fundamental document on planning, "Basic Statutes on Development of Model Planning for 1981-1985 and for the Period to 1990," methodological instructions on determination of construction costs while taking into account price forming factors and a number of others.

Gosstroy USSR has the responsibility for maintenance of a unified technical policy in construction, improving planning and estimating work, boosting the quality of planning, developing and implementing measures for reducing construction costs, improving urban development norms and improving the architectural appearance of cities, industrial centers and settlements.

The maintenance of a unified technical policy is attained:

(a) by means of methodological supervision of the work of planning and research organizations through a system of normative documents, such as SNiP [Construction Norms and Rules], SN [Construction Norms], standards and so on. At the present time, there are being carried out revision and more precise organization of the system of technical norm setting and standardization in the field of planning;

(b) through a network of planning and research organizations.

A network of regional, head and zonal organizations operates in the country. In particular, regional planning organizations of Gosstroy USSR have the task of implementation of a unified technical policy in connection with rational location of industrial enterprises and structures, uniting them into industrial centers, ensuring high quality of architectural-planning and construction solutions and economic expenditure of basic construction materials.

The function of the regional planning organization in Krasnoyarsk Kray is performed by Krasnoyarsk Industrial Construction Design office [Promstroyproyekt] of the USSR Ministry of Heavy and Transport Machine Building.

Ministries and departments implement technical policy in sectors through sectorial head planning institutes.

Technical policy in the field of planning of agricultural production facilities is implemented by zonal institutes under the jurisdiction of the USSR Ministry of Agriculture, ministries of agriculture of union republics and gosstroy committees of union republics.

The Eastern Siberian Zone, which includes Krasnoyarsk Kray, Irkutsk and Chita oblasts, Buryat ASSR and Tuva ASSR, is served by Krasnoyarsk giprosokhozstroy Institute of Gosstroy RSFSR.

In the field of model and experimental planning of residential and public buildings, it is served by the system of central and zonal institutes of Gosgrazhdanstroy.

A need exists for the regulation and organization of engineering research in construction. At the present time, it is being done by almost 1,300 organizations of different subordinations. Only 162 of them are large regional or specialized as to types of construction.

At the present time, a systematic review is being conducted of the network of planning and research organizations for the purpose of eliminating parallelism and duplication in their work and abolishing superfluous units and subdivisions.

As a result of the implemented measures, it is expected that by 1985 about 150-200 independent organizations will be cut out and about 100,000 planners will be released. First of all, there should be eliminated organizations and subdivisions with a size of up to 100 persons and volume of work of less than 400,000 rubles in a year. At the same time, concrete consideration should be given to the retention and development of promising organizations in developing

regions, curtailment of planning production in regions oversaturated with planning organizations for the purpose of reducing regional disproportions;

(c) with expert examination of planning-estimating documentation, which serves as an effective means of control over the quality of planning and introduction into production of the newest scientific-technical achievements and effectiveness of capital investment;

(d) with development and improvement of model planning on the basis of unification of spatial-planning, design and technological solutions, designs, workpieces and components.

Taking into consideration the special role of this direction in planning, it should be dwelt on in more detail inasmuch as the decree of the CPSU Central Committee and the USSR Council of Ministers "On Measures for the Further Improvement of Planning and Estimating Work" attaches major significance to model planning as a very important means of reduction of the time and improvement of the quality of planning as well as industrialization of construction. Gosstroy USSR has by now done considerable work along this line. Just recently intersectorial unification of construction decisions for auxiliary-production facilities of industrial enterprises was carried out, while accounting for rational layout among themselves and with production buildings. The introduction of these developments will make it possible to achieve an economic effect of up to 50 million rubles a year.

The holdings of model planning documentation (as of 1 January 1982) contain 3,250 model plans and model plan solutions, including for the construction and modernization of industrial enterprises, production buildings and--1,260, of buildings and structures of transport and communications--791, of warehouse buildings and structures--566 and of sanitary-technical systems and structures--677 plans.

There were worked out and are in use 2,123 albums of drawings of designs, components and parts. With their use it would be possible to work out the construction part of the plans of the great majority of production buildings and structures of industry, transport, communications and sanitary engineering. Work is being conducted systematically and purposefully on the renewal of this collection.

The further development of model planning during the 11th Five-Year Plan is aimed at increasing the volume of construction, modernization and reequipment of production facilities, buildings and structures on the basis of model projects and model-plan solutions, at expansion of the field of their use and at upgrading the quality of model plan documentation. Provision has been made for significant renewal and expansion of the holdings of model plans and model-plan solutions, primarily through the development of technological and design solutions for concrete natural-climatic zones and conditions of construction and modernization and the further standardization of plan solutions, such as sanitary technical and electrical engineering systems, KIP [koeffitsiyenty ispol'zovaniya ploshchadi--coefficients of use of area ] and automation, nonstandard intersectorial equipment and so on. At the same time, there will be



developed such a form of standardization as repeated use of economic and progressive sectorial individual plans, the latter to be worked up subsequently to model ones.

There has been revised at the present time the all-union construction catalog of model prefabricated reinforced concrete, metal, wood and asbestos-cement structures and items for all types of construction. The decree of Gosstroy USSR of 7 May 1982 put into effect on its basis a regional catalog of standard reinforced concrete designs of buildings and structures for industrial construction in Krasnoyarsk Kray and Tuva ASSR.

The catalog was worked out on the basis of the third part of the Construction Catalog while taking into account the requirements of "Technical Rules for Economical Expenditure of Basic Construction Materials" (TP-101-81), local construction and climatic conditions, the requirements of industrial construction and prospects of its development as well as the possibilities of the production base of contracting organizations of Glavkrasnoyarskstroy of the USSR Ministry of Heavy and Transport Machine Building.

The designs specified by the catalog are obligatory for use in the planning and construction of buildings and structures of industrial enterprises (with parameters of spatial planning solutions conforming to the designs included in the Regional Catalog) erected by contracting organizations of Glavkrasnoyarskstroy of the USSR Ministry of Heavy and Transport Machine Building. It was determined that the use of designs and items included in the catalog in the plans of buildings and structures does not call for agreement with the contracting organizations performing the construction in the region of operation of the given catalog.

The use of the Regional Catalog by planning and construction organizations as well as by plants making prefabricated reinforced concrete is intended to assure a reduction of the total number of type sizes and brands of reinforced concrete designs used in the given region, to speed up the introduction of progressive and the removal from production of obsolete designs, to create conditions for specialization of enterprises and plants making prefabricated reinforced concrete and the setting up of centralized manufacture of mold forms, equipment, accessory and foundation elements and to simplify relations between planning and contracting organizations.

The Central Institute of Model Planning of Gosstroy USSR has the responsibility of issuing and disseminating regional catalogs.

The decree of the CPSU Central Committee and the USSR Council of Ministers of 30 March 1981 "On Measures for Further Improving Planning and Estimating Work" specified a concrete national-economic problem: for the purpose of reducing the labor intensiveness and time of planning, boosting the economy of plan solutions, quality of work and labor productivity of planners, to ensure the working out and approval of a complex program for automation of planning work; to bring up in the 11th Five-Year Plan the level of automation of planning work to 15-20 percent of its total volume.

Gosstroy USSR and Gosplan USSR, USSR ministries and departments and the councils of ministers of union republic did a great deal of work in 1981, developed and approved departmental and republic complex programs serving as a component part of the Complex Program for Automation of Planning Work for the 11th Five-Year Plan. The Complex Program as a whole provides for planning organizations for 1985 a level of automation of planning work in excess of 15 percent. A number of USSR ministries and departments (Gosstroy USSR, Ministry of Mineral Fertilizer Production, Ministry of Construction of Heavy Industry Enterprises, Ministry of Petroleum Industry) are to have the level of automation 17 percent or higher. Accomplishment of the Complex Program will make it possible to provide in the planning of facilities in 1985 an economy of steel amounting to 700,000 tons, of cement amounting to 1,300,000 tons and a 5-percent rise of labor productivity on the average, which has already been taken into consideration in the plans of planning and research work approved by Gosplan USSR.

The organizational measures provided by departmental and republic complex programs encompass a significant range of questions needed for their realization. The scale of these organizational measures is shown by such facts as the need to retrain more than 60,000 specialists for work with automation equipment to effect transmission (introduction) of program support developed during the 10th Five-Year Plan solely to base organizations of ministries and departments in a volume of not less than 6,000-7,000 program transmissions with appropriate documentation. Within the parameters of established limits, the great majority of ministries and departments provide the installation in planning organizations of general unified-system electronic computers with a specific capacity (per worker) of 140 to 700 operations per second.

But realization of the Complex Program as a whole requires in addition further organizational work on the part of all USSR ministries and departments, councils of ministers of union republics, Gosplan USSR and Gosstroy USSR.

The importance and significance of automation of planning can be illustrated on the example of the Kiev Zonal Scientific-Research and Planning Institute of Model and Experimental Planning of Gosgrazhdanstroy. Use by the institute of means of automation provides a reduction in time and cost of planning work in the development design part of buildings of three- to fivefold and a reduction of metal outlays of 5-15 percent. Moreover, automation makes it possible to carry out development of standard series for concrete territorial regions while taking into account local special features. In addition to this automation has resulted in the creation of a new technology of planning realized in the planning production line and has required the solution of a number of organizational questions (creation of a department of cybernetics and an experimental planning computer center as well as putting under its direct subordination a planning workshop and so on).

Among the new methods and means of planning being introduced at the present time that provide higher labor productivity on the part of planners and a higher quality of plan documentation, there should be included the use of integrated printing technical equipment for planning (PTSP) in the form of standard elements of mechanical drawings and auxiliary technical aids (VS). Gosstroy USSR has been engaged on this problem for a number of years; the base organization is the Central Institute of Model Plans.

System use of PTSP creates preconditions for a gradual inclusion of the use of a set of printing technical planning equipment in an automated planning system (SAPR). The economic effect of integrated use of PTSP in 1981 amounted to more than 5.8 million rubles, which corresponds to a nominal release of 4,500 personnel a year from planning organizations.

But the production of printing technical planning equipment in regard to volume, products list and types still lags significantly behind the needs of planning organizations. The production volume of PTSP should be increased with expansion of its products list and development of new forms and methods of dissemination.

An important place in the technical support of an automated system of planning of construction projects is occupied by organizational-control equipment resources.

A system of processing planning documentation on the basis of microfilming and electrography (the Proyekt System), assigned by Gosstroy USSR and the USSR State Committee for Science and Technology, has been developed and introduced. It encompasses all the new stages of compilation, copying, storage and retrieval of planning documentation and unites them into a single complex.

The Proyekt System makes it possible to reduce labor intensiveness of mechanical drawing, graphic and copying work, to reduce the time of information retrieval for planning documentation and to actively use analogs of previously performed planning solutions. The Proyekt System was first adopted by 109 planning organizations of 33 ministries and departments. Its economic effect amounted to 7.8 million rubles. During the 11th Five-Year Plan, in the remaining three years, the second group will be introduced in 30 organizations of the construction section. The introduction of the second group of the Proyekt System will make it possible to increase labor productivity in planning of construction projects by 8-9 percent and to provide a still greater economic effect.

Among new effective methods of planning of facilities with large saturation of technological and other equipment, mention should be made of planning involving the use of three-dimensional models, which are widely used at a number of major technological institutes (for example, the State Planning and Scientific-Research Institute of the Synthetic Rubber Industry, the State Scientific-Research and Planning Institute of the Nitrogen Industry and Products of Organic Synthesis and others). Models are also used in the working out of plans and in work planning. Models are part of work documentation and are turned over to client of the project for use of his contracting construction and installation organization in installation of buildings, structures, equipment and communications. The use of three-dimensional models ensures a higher quality in the development of plan documentation, reduces times and raises the quality of installation work at the construction site. In working out of plan estimation documentation, two-dimensional model planning is also used.

For the purpose of upgrading the quality of planning and timely provision of construction sites with plan estimation documentation, a decree of the CPSU

Central Committee and the USSR Council of Ministers No 312 of 30 March 1981 spelled out important measures for improving the economic mechanisms and regulating production and finance work of planning and research organizations. Its implementation will make it possible to strengthen cost accounting, to ensure smooth operation of these organizations, to improve the basis for planning under conditions of the credit form of financing of planning and research work and to expand the author's supervision of construction.

Gosstroy USSR jointly with Gosplan USSR, Stroybank USSR, the USSR Ministry of Finance, the USSR State Committee for Labor and Social Problems and other interested ministries and departments are engaged in work on revision of the normative legal base. In particular, Rules on Agreements for Performance of Planning and Research Work have been prepared. They will contribute to the effective use of funds allocated for planning. Provision is made for the conclusion of agreements between clients and planning-research organizations for the entire planning period. The Rules provide as well for increasing the responsibility of clients of plans for timely issue of initial data for planning and their quality, for timely availability of finances for planning-research work, acceptance and payment of plan estimation documentation and of the planners for completion of plan estimation documentation with obligatory observance of normative documents and GOST's, complete issue of documentation with fitting quality in a time required for the timely provision of construction projects with plan estimation documentation.

The existing procedure of formation and expenditure of economic incentive funds and also a model statute on bonuses for workers of planning and research organizations are being revised. The new system should provide for the possibility of issuing bonuses to workers only in those cases where, in the working out of plan estimation documentation, a level is reached for indicators set out in the planning assignment, first of all for such items as cost of construction, cost of production (rendering of services), repayment of capital investment and for specific indicators on the effectiveness of capital investment, materials intensiveness and labor intensiveness of construction. In this connection, there is proposed a certain increase in average pay through issuing of bonuses and firm guaranteed sources of incentives are created, first of all for high quality of plan estimation documentation and for the economic effect attained in the operation of the planned facilities.

As we know, the quality of planning largely depends on the so-called "experience of planning," which should accumulate and be systematized by planning organizations. In the transition to the new procedure of planning, which requires expanded working out in plans with many technical and economic questions, including calculations of construction cost, such an accumulation of the bank of plan data and data on already built facilities becomes especially pertinent.

At the present time, in conformity with the directive of Gosstroy USSR, ministries and departments and planning and research organizations have started on the creation of a so-called "data base"--this is the creation of a needed information bank, first of all of technical-economic indicators, characterizing in maximum degree the quality of planned and already constructed facilities.

The vehicle of such information is becoming today a logbook of approved plans presented to Gosstroy USSR since 1981. On the basis of these data it is possible to estimate the level of plan solutions, to create a system of expanded indicators of construction cost and outlays on basic construction materials, to locate economical plans for repeated use and so on. Naturally, work on the accumulation and systematization of a data bank on plan certificates requires automation of this process. Such work is already being done by Gosstroy USSR.

All the reorganization of planning and estimation work being done at the present time is aimed at the solution of a basic task set before planners--to ensure the realization in plans of the achievements of science, technology and advance domestic and foreign experience so that constructed or modernized enterprise by the time of their startup are technically advanced and assure the production of high-quality products in accordance with scientifically based norms for outlays of labor, raw and other materials and fuel and power resources. The solution of this basic task should also involve socialist competition in planning and research organizations, which as Comrade L.I. Brezhnev said at the 17th Congress of USSR Trade Unions "serves as a mighty factor of economic growth."

The forms of socialist competition should be constantly developed and improved. We are convinced of this by the initiative of the Gidroyekt and institutes of Gosstroy USSR, which came out with an initiative for raising the scientific-technical level of plans and reducing on this basis the estimated cost of construction of facilities and economy of labor and material resources.

A great role as well is played by party organs in the fulfillment of measures provided by the decree of the CPSU Central Committee and the USSR Council of Ministers aimed at the creation of conditions for planning in which they would have a broad possibility of displaying creative initiative aimed at ensuring the creation of plans of enterprises, buildings and structures meeting present-day requirements of scientific-technical and social progress and conditions of conversion of the economy to an intensive path of development in accordance with the decisions of the 26th CPSU Congress.

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## CONSTRUCTION PLANNING AND ECONOMICS

### RESTRUCTURING OF MATERIAL SUPPLY PROCESS ADVOCATED

Moscow EKONOMICHESKAYA GAZETA in Russian No 46, Nov 82 p 14

[Article by V. Stakhanov, candidate of economic sciences: "When Deliveries Are Guaranteed: Problems of Improving the Quality of Supply Deliveries to Construction"]

[Text] Of definite interest in implementing the conversion of construction projects to comprehensive material supply by means of USSR Gossab's territorial organs are the experience and problems of practical work, as they are being applied in the construction of Atomash facility and the Rostovskaya AES. Cooperating together here are the Volgodonskenergostroy General Contracting Trust and the Volgodonsk Replenishment [?] Administration (VUK), created in 1976 under USSR Gossnab's North-Caucasus Territorial Administration.

The VUK guarantees 100-percent fulfillment of consumers' orders. The system of a guaranteed comprehensive supply delivery also provides for rendering additional services to builders in delivering products to facilities and preparing them for operational production. Some 82 percent of freight is dispatched from the VUK warehouses to the construction projects in a centralized manner in accordance with weekly and daily schedules.

#### Why Reserve Stocks Are Necessary

It may be rightfully stated that the ahead-of-schedule introduction and the putting on line of the first stage of Atomash, along with the start-up six months before the deadline of the first nuclear reactor, represent not only the merit of the builders and operators but also the material-technical supply workers--the VUK group. At all stages--from determining the needs to the centralized shipment of products to the projects in accordance with the weekly and daily schedules--they operated in synchronization with the rhythm of the construction conveyor.

The radical deficiency of the previous system of supply planning consisted of serious miscalculations in determining the needs of construction projects. The new system proposes to determine needs in accordance with plans and estimates. In practice, unfortunately, frequent deviations from the order adopted are allowed. This is explained, in particular, by the lack of any necessary plan-estimate specifications during the period of calculating the needs, by the frequent introduction of changes in the products list of construction-installation operations, and by insufficient grounds for establishing the norms for material outlays.

Under analogous conditions, in order to determine the resource needs for the planned period, along with the designs and estimates, extensive use is made, as before, of consolidated norms of expenditure per million rubles of construction-installation operations. All too often this is entrusted merely to the experience and...the intuition of the VUK workers.

But these are far from being the most reliable methods for determining needs. Therefore, there has been an accumulation in the VUK warehouses of large reserve stocks of valuable goods and materials, the amounts of which, by the beginning of the current year, had exceeded the norm by 6.3 million rubles.

In addition to maintaining large reserve stocks, the VUK undergoes considerable additional expenditures to acquire products which have not been ordered ahead of time; as a rule, the need for these products is revealed unexpectedly and urgently. For, you know, the conditions of guaranteed, comprehensive supply delivery mandate the satisfaction of all needs, including those which are unforeseen. As regards such expenditures by the VUK, they have reached, by the most careful computations, half a million rubles a year, and they are not compensated by anybody.

The solution of the given problem must be sought for in the consistent carrying out of the decree on improving the economic mechanism, which provides for the inclusion within the plans of capital construction only those projects for which, as of 1 July of the year preceding the planned year, there are design-estimate specifications. This requirement has been regularly violated by the Volgodonskenergostroy Trust. Thus, for the 1983 plan, by the indicated deadline up to 40 percent of the operational programs had not been provided with design-estimate specifications.

#### Monitoring Savings

The operational administration of material-supply deliveries to construction sites is organized on the basis of weekly-daily schedules. Discrepancies arise here, for the most part, because of a lack of preparedness on the part of the projects to receive items within the assigned time periods. Frequently, because of a lack of loading-and-unloading equipment and materially responsible persons, trucks which have arrived at a construction project remain idle, and sometimes they even return fully loaded.

There is practically no monitoring system on the part of the consumer for keeping track of the return of packing materials used for many turnovers. Most of Volgodonskenergostroy's sub-divisions have no specially equipped warehouses at their projects. As a result, 3-4 times as many trucks are used than are required by the norm for the centralized delivery of freight. Fines imposed on builders for the non-return of packing materials amounted to 114,000 rubles during 1981.

The reason for such shortcomings, in our opinion, is a simple one. The level of utilization of transport and packing materials on the projects is, in no way, reflected in the personal material interest of the builders. If only 1/100th of the fines and losses were to be made up at the expense of those directly guilty of causing them, then in 99 out of 100 cases the product-shipment schedules would be better established, while the projects would be prepared to receive the freight.

Playing a notable role in improving the quality of material supply to construction is the economical expenditure of material resources. Monitoring this is one of the basic functions of the VUK. As a result of check-ups conducted in the sub-divisions of the Volgodonskenergostroy Trust, based on last year's sources, an over-expenditure of 3,800 tons of rolled steel was revealed, as well as 4,200 tons of pipes and other metal products. For violating the plan discipline fines were imposed on the consumers amounting to 78,000 rubles.

Here too a paradoxical situation has arisen. The VUK is fining people with one hand and allocating additional resources with the other. Thus, in order to ensure the on-schedule completion of the construction projects, the administration was compelled to make additional deliveries to the construction project by way of covering an over-expenditure in 1981 and during four months of 1982 some 84,000 sq. meters of glass, 20,500 sq. meters of linoleum, and other materials.

It seems obvious that, in order to strengthen a regimen of savings, there should be no exception to the rule providing for a reduction of the limits of material resources to the size of their irrational utilization. This will compell the builders to monitor more strictly the outlay of materials, to study reserves more carefully, and to draw them into production. In order to increase the VUK's monitoring and regulating role, it would be feasible to obligate the builders to present it, according to approved schedules, with information on the outlay and remaining amount of commercially valuable materials. As a result, the episodic, spot-check type of monitoring will be replaced by a systematic, continuous checking up on the effectiveness of materials utilization on the construction project.

#### Contract Discipline

Within the system of the economic-contract inter-relations between the VUK and the manufacturing plants a central place is occupied by the problem of delivery reliability. In 1981 the warehouses of this administration were not replenished with deliveries, as contracts had provided, of 8,400 tons of rolled steel, 60,000 sq. meters of glass, 800 tons of metal products, and many other products. Only the presence of sufficient reserve stocks permitted the on-time and full-amount performance of the tasks and obligations with respect to supplying materials for the construction of the Atommash and the Rostovskaya AES. Fines amounting to 232,000 rubles were imposed on the undisciplined suppliers. But likewise in 1982, as before, the Krivorozhskiy, Makeyevskiy, and Cherepovetskiy Metallurgical Plants, along with several other enterprises, have failed to fulfill their contract obligations.

Practical experience has shown that, along with fines and evaluating the activity of suppliers with respect to carrying out the delivery plan, we need effective and operational monitoring of contract discipline on the part of the central and territorial organs of USSR Gosstab. At the present time the consumer most often turns out to be completely dependent on the supplier, which frequently compells him to act to resort to the rights granted to him. Therefore, increasing the monitoring role of the extra-departmental supply organs will allow us to reduce losses arising from the non-fulfillment of contract obligations.

Given the relative youth of the VUK, a great deal of alarm has been caused by the condition of its material-technical base. Every year the VUK specialists work out



fine schedules for the planned preventive maintenance and repair of equipment, they present their requisition orders for spare parts ahead of time and with good grounds, and...and they receive no more than 10 percent of the requested needs. They have to seek out all the rest by means of their own efforts. Without mentioning the material damage, such a self-supply method is fraught with great moral costs.

Shortages of spare parts leads to accelerated wear and tear on the equipment. At certain times almost one-fourth of the entire pool of hoisting and transport equipment has been idle because of a lack of spare parts. I would like to direct the attention of the USSR Gosstab's territorial organs, in this case, that of the North Caucasian Central Administration, to guaranteeing the sub-departmental organizations everything necessary for the effective utilization of their fixed capital assets.

A characteristic trait of construction production is the complexity of needs, when the material-technical resources must arrive in a certain sequence and a rigorously conditioned combination. The experience of the economic-contract inter-relations between the VUK and the Volgodonskenergostroy Trust shows that the high-level of supply quality is achieved only when there is a guarantee of deliveries not to one or ten positions but to the entire products list of items needed. Of course, the VUK cannot arbitrarily and limitlessly expand the range of its deliveries within the bounds of all product-assortment descriptions needed by a construction project. The USSR Gosstab territorial administration does have considerably large potentials at its disposal.

It is high time, in our opinion, that we make the transition from the numerous local delivery contracts which the Volgodonskenergostroy Trust concludes almost every year with a series of enterprises and supply organizations to a system of general agreement, whereby the role of the chief supplier will be carried out by Sevkavkazglavsnab. In this case, the administrative functions of the territorial administration will be combined with the economic-contract ones, the potential responsibility for supply quality--with the real one.

One of the foremost trends in further improving the VUK's activity is the introduction of a comprehensive system of controlling the quality of material-technical supply. At present the VUK specialists in conjunction with staff members of the Volgodonsk Branch of the Novocherkassk Polytechnical Institute are working out a KSUKMTS [?] draft design, based on standardizing the fundamental technological processes and administrative functions.

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## CONSTRUCTION PLANNING AND ECONOMICS

### INSTRUCTIONS FOR RE-ESTIMATING CONSTRUCTION IN NEW PRICES

Moscow EKONOMIKA STROITEL'STVA in Russian No 10, Oct 82 pp 63-67

["Instructions on the Procedure for Re-Estimation in accordance with the New Standardized Evaluations of Construction Operations, Evaluations of Equipment Installations, Price Lists, and Consolidated Estimated Norms of Project Estimates, on the Basis of which Calculations are to be Conducted for Completed Construction and Installation Operations; Approved by USSR Gosstroy, 30 June 1982, No 50-D"]

[Text] The present instructions have been worked out in accordance with the decree of the USSR Council of Ministers, dated 4 January 1981, No 5: "On Making the Transition to the New Estimated Norms and Prices in Construction" (par. 15), setting up the procedure for re-estimating in accordance with the new standardized evaluations of equipment installation, price lists, and consolidated estimated norms of project estimates, on the basis of which calculations are to be conducted for completed construction and installation operations.

1. The new standardized evaluations of construction operations, evaluations of equipment installation, price lists, and consolidated estimated norms should be used to re-calculate the project estimates for construction projects carrying over to 1984 and those begun new in 1984, on which calculations for completed construction and installations operations are to be conducted with regard to the estimated value of the commercial construction product.

Re-estimation of project estimates will be conducted in accordance with the forms cited in Instruction SN 202-81\*.

Payment for construction and installation operations completed in 1984 on such projects will be carried out on the basis of project estimates, as re-estimated within the over-all estimate of the construction project, in accordance with the corresponding indexes of change in the estimated value of the construction and installation operations according to the sectors of the national economy, the sectors of the industry, or the trends within the sectors.

\* Not subject to re-estimation will be project estimates for construction projects being carried over to 1984 on which the estimated costs of construction and installation operations are less than 1 million rubles, whose commissioning is provided for in 1984, while the amount of construction and installation operations completed as of 1 January 1983, both paid as well as unpaid by the client (unfinished production) with a plan supplement of construction and installation operations for 1983 (unfinished production) comprises 90 percent or more.

2. Project estimates will not be re-calculated for construction facilities to be carried over into 1984 or newly begun in 1984 with regard to construction projects on which, within the established procedure, payment for construction and installation operations is permitted in accordance with standardized evaluations for construction operations and evaluations of equipment installation for actually completed amounts of work in conformity with the blueprints.

Payment for construction and installation operations on such projects completed since 1 January 1984 will be conducted within the bounds of the estimated limit with regard to the project estimate, as re-estimated within the over-all estimate of the construction project, based on the corresponding indexes of change in the estimated value of the construction and installation operations according to the sectors of the national economy, the sectors of the industry, or the trends within the sectors.

3. The new, estimated cost of construction and installation operations on construction projects newly begun in 1984, as indicated in par. 1 of the present Instructions, will be determined by means of re-calculation in accordance with the new standardized evaluations of construction operations, evaluations of equipment installation, price lists, consolidated estimated norms, norms of overhead expenses for construction operations, and planned accumulations of project estimates, compiled and approved in estimated norms and prices of 1969.

Moreover, supplementary expenditures, included within the project estimates (expenses for temporary buildings and structures not provided for by overhead, additional expenses in conjunction with carrying on construction and installation operations in wintertime, expenses incurred in hauling away trash after the completion of construction and installation operations, funds for unforeseen operations and outlays, etc.), are to be re-estimated in accordance with the new norms.

The procedure outlined above will also be used to re-calculate project estimates for the construction of temporary buildings and structures on which the payment for completed construction and installation operations is carried out for actually erected facilities.

When re-calculating project estimates, in necessary cases, an indicator of normative conventional-net production must be set up.

4. With regard to the construction projects carrying over to 1984 (except for the projects provided for in the footnote to par. 1 of the present Instructions), the re-calculation of the project estimates will be conducted in the following procedure:

a) divisions of the project estimate for which all the construction and installation operations will be completed prior to 1 January 1984 are not to be re-calculated;

b) the remaining divisions of the project estimate will be re-calculated, proceeding from the complete design volume of the work, regardless of which operations and in what amount are completed prior to 1 January 1984.

Moreover, the work volumes are to be determined by measuring techniques and proceeding from the make-up of operations adopted in the new, standardized evaluations and in accordance with the rules for calculating operational volumes provided for by the new, estimate norms.

Re-calculating the appropriate divisions of the project estimate is to be conducted in accordance with the new, standardized evaluations for construction operations, evaluations for installing equipment, price lists, and consolidated estimated norms, to the extent established.

In re-calculating the project estimates it is not permitted to introduce into them any sort of changes unconnected with the introduction of new, estimated norms and prices;

c) the new estimated cost of the construction and installation operations remaining to be completed on 1 January 1984 is to be determined on the basis of data obtained from re-calculating all the operations of the corresponding division of the project estimate and the proportion (in percentages) of operations remaining to be completed.

In order to obtain the full cost of construction and installation operations for the corresponding division of the new project estimate, one adds to the data received the cost of construction and installation operations completed as of 1 January 1983, those which have been paid as well as those which have not been paid by the client (unfinished production) and the cost of construction and installation operations as planned for 1983 (unfinished production), as computed in estimated norms and prices of 1969.

The following is an example. The full estimated cost for the "Walls" division of the project estimate within the estimated norms in 1969 prices amounted to 20,150 rubles; the cost of these operations on 1 January 1984 within the indicated norms and prices amounted to 8,168 rubles, or 45 percent. Consequently, the operations remaining on 1 January 1984, subject to re-estimation in accordance with the new estimated norms and prices, will be set at an amount of 55 percent of the total volume of operations for the given division. According to the project estimate, as re-estimated by the new estimated norms and prices, the full estimated cost of operations for the "Walls" amounted to 23,172 rubles. With the indicated data the new estimated cost of operations remaining to be completed as of 1 January 1984 will be  $23,172 \times 0.55 = 12,745$  rubles, while the full estimated cost of operations for the division will amount to  $8,168 + 12,745 = 20,913$  rubles (see Supplement 2).

This same procedure is to be followed in determining the full estimated cost of construction and installation operations for other divisions of the project estimate;

d) the estimated cost of construction and installation operations, completed as of 1 January 1983 and paid for by the client, is determined on the basis of acceptance documents for completed construction and installation operations (Forms No 2a and No 2b) for the corresponding reporting period, as expressed in summary monetary terms for the individual divisions of the project estimate (earthwork, foundations, building framework, walls, roofs, etc.);

e) the estimated cost of construction and installation operations, completed as of 1 January 1983 but not paid for by the client (unfinished production), is to be determined on the basis of the account log for operations completed on the project, as kept on the construction projects by the contractor and as expressed in summary monetary terms for the individual divisions of the project estimate.

Capable of serving as a document confirming the correctness of outlays for unfinished production are information statements concerning the cost of completed operations (Form No 3) for the corresponding reporting period, presented to the financing bank in order to obtain funds for paying wages;

f) the estimated cost of construction and installation operations for the 1983 plan (unfinished production) is determined by means of distributing through the individual divisions of the project estimate (in toto) the plan amount of capital investments for construction and installation operations, provided for by the intra-construction title list for 1983.

The data indicated in sub-paragraphs "d," "e," and "f" of the above paragraph of the Instructions are formally registered by the joint signatures of the client and the contractor and are transmitted by the client to the planning organization in the form of an information statement, as represented in Supplement 1.

The design organization sums up the results of the re-calculation of the project estimate and the data presented by the client, and the form for this along with an example of its use is cited in Supplement 2.

Miscellaneous expenditures (temporary buildings and structures, increased costs for operations conducted during wintertime, funds for unforeseen operations, expenses, etc.) for construction and installation operations remaining to be completed as of 1 January 1984 are to be re-estimated in accordance with norms approved for use beginning on 1 January 1984.

The indicator of the normative-net production for construction and installation operations remaining to be completed on 1 January 1984 and re-estimated in accordance with the new estimated norms and prices, is determined by proceeding from the average size (in percentages) of this indicator, adopted as a whole for the project estimate, as compiled in estimated norms and prices of 1969.

5. With regard to temporary buildings and structures carrying over by construction to 1984 on which the payment for completed construction and installation operations is made for facilities actually erected, the re-calculation of project estimates is to be conducted by the procedure set forth in par. 4 of the present Instructions.

6. Based on the re-calculated project estimates, a more refined record is made of the estimated cost of commercial construction production for the enterprise, sequence, start-up complex, facility, as well as a record of the estimated cost of constructing facilities included within the start-up complex and within the working specifications.

7. Work on re-calculating the project estimates is to be carried out by means of the remainder of funds for design and surveying operations and, when these are exhausted, by means of the reserve funds for unforeseen operations and expenses, which are at the disposal of the client, or savings on funds with regard to other divisions of the over-all estimate.

8. Re-calculation of project estimates should be performed at the client's best by the same design organizations which worked out the estimate specifications for the corresponding construction project.

9. The reaffirmation of project estimates, re-calculated in accordance with the new estimate norms and prices, is to be conducted by the client-title-holders upon agreement with the contracting construction organizations.

10. With regard to projects and operations for which the compilation of estimate specifications has specific characteristics--mainline petroleum, gas, and product pipelines, electric-power transmission lines (with price lists), railroads and highways, engineering pipelines, mining-excavation operations, and others--supplementary instructions concerning the procedure for re-calculating the project estimates for such facilities and operations are to be established by the appropriate USSR ministries in agreement with USSR Gosstroy.

Supplement 1

Client \_\_\_\_\_

(name of construction project)

Contractor \_\_\_\_\_

(name of facility)

# INFORMATION STATEMENT

Concerning the estimated cost of construction and installation operations (paid for by the client and unfinished production) as of 1 January 1984 in estimate norms and prices of 1969

No of par. [?]	Name of division of project estimate	Estimated cost of construction and installation operations (r.)		
		Paid for by acceptance documents for construction and installation operations com- pleted (Forms No 2a and No 2b) as of 1 Jan 83	Unfinished production as of 1 Jan 83	According to the 1983 plan (unfinished production)
1	2	3	4	5
Seal		Client	(official position, signature)	
Seal	198--	Contractor	(official position, signature)	

(Name of construction project)

## RECORD

of results of re-calculating in accordance with the new estimate norms and prices to be put into effect beginning 1 January 1984 of the project estimate for construction

to be put into effect beginning 1 January 1984 of the project estimate for construction											
No. of par. P	Name of divisions of project estimate	Cost of construction and installation operations by project estimate in estimated norms and prices of 1969 (r.)	(Name of facility)						Cost of Construction and installation operations in estimated norms and prices of 1984 (r.)		
			Completed as of 1 Jan 1983	By operations acceptance documents accepted for payment (r.)	Unfinished production (r.)	According to the plan for 1983	Total (gr. 4 + gr. 5 + gr. 6)	% of complete cost of construction and installation operations { gr. 7 X 100 gr. 3	Remaining construction and installation operations as of 1 Jan 84 (in %) of full cost of operations (100—gr. 8)	Full amount of operations by divisions of project estimate	Carrying over to 1984 (gr. 10 X gr. 9)
1	2	3	4	5	6	7	8	9	10	11	12
	I. Construction operations										
1	Earthwork	12,750	12,750	--	--	12,750	100	--	--	--	12,750
2	Foundations	35,375	35,375	--	--	35,375	100	--	--	--	35,375
3	Building frame	10,250	10,250	--	--	10,250	100	--	--	--	10,250
4	Walls (exterior and interior)	20,150	--	4,100	4,068	8,168	45	55	23,172	12,745	20,913
5	Partitions (interior)	4,200	--	--	4,200	4,200	100	--	--	--	4,200
6	Roofs	17,160	--	--	17,160	17,160	100	--	--	--	17,160
7	Roofing with heating	7,550	--	3,225	4,325	7,550	100	--	--	--	7,550
8	Filling window and door spaces	15,200	--	5,100	10,100	15,200	100	--	--	--	15,200
9	Floors	16,100	--	9,700	6,400	16,100	100	--	--	--	16,100
10	Exterior finishing work	450	--	--	--	--	--	100	518	518	518

## Supplement 2 (Continued)

1	2	3	4	5	6	7	8	9	10	11	12
11	Interior Finish- ing work	5,600	--	--	--	--	--	100	518	518	518
12	Heating and ventilation	17,850	--	--	3,570	3,570	20	80	21,420	17,136	20,706
13	Water and sewer lines	4,050	--	--	1,215	1,215	30	70	4,860	3,402	4,617
14	Electric lighting	1,800	--	--	900	900	50	50	2,160	1,080	1,980
15	Footings under equipment	20,800	--	--	10,400	10,400	50	50	24,960	12,480	22,880
	Totals	189,285	58,375	22,125	62,338	142,838	--	--	--	53,801	196,639
	II. Installation operations										
16	Installation of production equipment	3,600	--	--	--	--	--	100	3,960	3,960	3,960
17	Installation of crane equipment	5,200	--	--	--	--	--	100	5,980	5,980	5,980
18	Installation of non- standardized equipment	23,800	--	--	--	--	--	100	26,180	26,180	26,180
19	Installation of electric- power apparatus	3,900	--	--	--	--	--	100	4,290	4,290	4,290
20	Installation of signalling and communications apparatus	1,500	--	--	--	--	--	100	1,650	1,650	1,650
	Totals	38,000							42,060	42,060	
	Grand Totals	227,285	58,375	22,125	62,338	142,838			95,861	238,699	

Note: The list of project estimate divisions and cost indicators cited in this record have been adopted provisionally.

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## CONSTRUCTION PLANNING AND ECONOMICS

### GOSBANK, GOSSTROY STRESS CONSTRUCTION DEADLINES

#### Stroybank Role in Finance

Moscow EKONOMICHESKAYA GAZETA in Russian No 43, Oct 82 p 7

[Article by N. Golovanev, deputy chairman of the board of directors of USSR Stroybank: "Introduction of Projects and Financing"]

[Text] On 1 September 1922 the Council of Labor and Defense ratified the Charter of the Industrial Bank as a joint stock company. On 28 October 1922 the Industrial Bank began operations.

In April 1959 the Industrial Bank was renamed the All-Union Bank for Financing Capital Investment, called USSR Stroybank. It was given the additional assignment of performing a number of the functions of the former Agricultural Bank, the Central Municipal Bank, and the municipal banks, and its authority was broadened in the area of monitoring fulfillment of plans for putting industrial capacities and fixed capital into use.

Stroybank today is in charge of credit and finance for about 75 percent of state capital investment, short-term credit for contracting and planning-surveying organizations, and finance and credit for construction of projects by the Soviet Union abroad. No other bank of this type in the world can equal it for volume of transactions on outright financing and long-term credit or short-term credit for construction clients, construction, planning, and supply organizations, and all other enterprises involved with investment.

The State Plan for Economic and Social Development of the USSR is the basis for financing and credit of capital investment.

#### Through Credit

According to its Charter, USSR Stroybank institutions work to speed up the launching of capacities and fixed capital, reduce incomplete construction, raise the efficiency of capital investment, and strengthen cost accounting in construction. The enormous capital of the enterprises and organizations is mobilized to finance capital investment; the share of this capital is growing every year. In the 10th Five-Year Plan 193.6 billion rubles was enlisted in this way, which was 46.9 percent of the total amount of capital investment financed. In 1981

the enterprises' own capital (depreciation, profit, development fund, and the like) comprised almost 49 percent of all sources of financing of state capital investment.

Long-term credit is one of the sources for financing capital investment. Its advantage as a source of expanded reproduction of fixed capital is that it, mediating all stages of the investment process, exerts a significant influence on the efficiency of capital investment.

During the 10th Five-Year Plan Stroybank issued 34.6 billion rubles in such loans. In 1981 the estimated cost of projects receiving credit exceeded 60 billion rubles. The money is granted first of all for reconstruction and technical re-equipping of enterprises. Enterprises being built on the basis of compensation agreements are constructed entirely through credit.

Most of the production facilities built with the participation of credit are turned over on schedule or ahead of schedule. As an example we may mention the major capacities at the Nikolayevsk Alumina Plant, the Kursk Khimvolokno Production Association, the Yedintsy Wood Processing Machine Plant, and the Kishinev Pishchemash Plant.

When it is a matter of improving public well-being long-term credit is even granted beyond the limit of state capital investment. In 1981, for example, 103 enterprises to produce consumer goods, 427 trade and service facilities, 88 facilities to produce food goods, and 77 subsidiary farming operations of enterprises located in rural areas were built in this way.

USSR Stroybank also gives long-term credit to housing construction cooperatives in cities and urban-type communities and grants credit for individual housing construction, capital repair of residential buildings, and for workers and employers to set up house. In 1981 1,060 cooperative housing buildings with a total area of about 5 million square meters were put into use with the participation of credit.

#### New Requirements

The decree of the CPSU Central Committee and USSR Council of Ministers adopted on 12 July 1979 and entitled "Improving Planning and Strengthening the Influence of the Economic Mechanism on Raising Production Efficiency and Work Quality" marked the beginning of a qualitative renewed phase in the development of credit relations and enlargement of the bank's role in speeding up the launching of production capacities and projects and improving the efficiency of capital investment. One part of the set of measures envisioned by this decree is a change to settling accounts between clients and contractors for commodity construction output (objects, start-up complexes, enterprises, and phases that are completed and turned over for operation) without intermediate payments and settling accounts between clients and planning-surveying organizations for finished planning work.

Incomplete construction-installation and planning-surveying work before turning over projects (before completion of plans in planning organizations) is almost

fully supported by Stroybank loans. This kind of credit is granted to the construction organizations at 0.5 percent annual interest. But if the project is not introduced on time the bank, without cutting off the credit, increases the interest rate eight times, to four percent. The payment for credit is used as an economic lever that encourages organizations to adopt steps to eliminate the factors that prevent timely fulfillment of the start-up program.

At the present time about 75 percent of the working capital at construction organizations is covered by bank credit. In 1981 contracting organizations received 147.5 billion rubles of short-term credit, more than 80 percent of which was loans for expenditures related to incomplete production.

#### Ruble Control

Credit is granted first to organizations that are working well, fulfilling assignments for launching production capacities, commodity construction output, labor profitability, and profit, and preserving their own working capital. The interest rate is cut in half in this situation and the amount of capital for urgent needs is increased. By the start of 1982 512 construction organizations were receiving credit under privileged conditions.

There has also been a rise in the importance of measures of credit influence applied to contracting organizations who do not fulfill plan assignments, violate state planning and financial discipline, permit mismanagement, and spend their own working capital. In many cases the measures of credit influence employed by the bank promote an improvement in the financial and management activities of the contracting organizations. During the present year most of the contracting organizations to whom sanctions have been applied have improved their work and been restored to credit, while 1,460 organizations took steps to fulfill quantitative and qualitative indicators after being warned of the application of special credit conditions and it was not necessary to apply sanctions to them.

One of the functions of Stroybank is to make sure that construction sites and projects have ratified planning and estimate documents which correspond to effective planning norms and estimate norms and prices. By studying the technical-economic indicators of construction sites in the stages of design and construction, the efficiency of planning decisions, and correct use of construction planning norms, estimate norms, and prices institutions of Stroybank identify reserves for reducing the cost of construction. During the 10th Five-Year Plan the estimated cost of construction projects was reduced by 8.9 billion rubles following proposals by Stroybank, and in 1981 the figure was 2.4 billion rubles.

In recent years Stroybank has broadened its functions in shaping plans of capital construction and contracting and planning-surveying work. In the stage of development of draft plans the bank makes proposals on concentration of capital investment primarily at start-up projects, on preferential use of capital for reconstruction and technical re-equipping of existing enterprises, and on limiting the number of new projects begun as much as possible.

In the current phase USSR Stroybank organizes the finance and credit of capital construction based on the requirements of the 26th CPSU Congress and the

November 1981 and May 1982 Plenum of the CPSU Central Committee with respect to the need to enlarge the role of finance and credit levers in intensification of production, strengthening cost accounting, intensifying economy measures, and insuring timely introduction of production capacities and fixed capital.

#### New Construction Planning Indicators

Frunze SOVETSKAYA KIRGIZIYA in Russian 2 Oct 82 p 2

[Interview with S. Voloshchenko, head of the economics department of Kirghiz SSR Gosplan, and O. Makarova, deputy manager of the Kirghiz Office of USSR Stroybank, by N. Kucheruk; occasion, date, and place not specified: "The Main Thing Is Introduction of Projects — This Is What Commodity Construction Output, the New Planning Indicator, Encourages"]

[Text] Speeding up the introduction of all projects into use, whether it be an enterprise or a residential building, is an insistent demand of the times. A program of measures aimed at solving this problem is being carried out in conformity with the decree of the CPSU Central Committee and USSR Council of Ministers on refining the economic mechanism of the country. Specifically, many new features have appeared in the system of planning, financing, and credit for construction. At the request of the editors, S. Voloshchenko, head of the economics department of Kirghiz SSR Gosplan, and O. Makarova, deputy manager of the Kirghiz Office of USSR Stroybank, tell about these innovations.

[S. Voloshchenko] Since the beginning of the 11th Five-Year Plan a great deal has been done in capital construction to enhance the stability of the five-year plan and balance it with material resources and the capacities of construction-installation organizations.

Special attention has been devoted to measures that orient construction workers to final results. After all, remember how it was a short time ago. Contractors received money not for turning over a project for use, but for jobs performed. So often it would happen that they would appear to do quite a bit of work and would be paid for it completely, but the schedules for turning over buildings and structures would drag out. A new procedure has been introduced this year. The activities of contracting organizations are planned and evaluated by two principal indicators: introduction of production capacities and projects into operation, and growth in capacities through reconstruction and technical re-equippping and the volume of total commodity construction output and the amount done with the organization's own personnel.

Commodity construction output is the cost of construction-installation work for enterprises, phases, start-up complexes, and facilities prepared to produce output or render services which have been turned over to the customer.

These basic indicators of the activity of construction organizations are inter-related; if projects are introduced as planned, this means that the planned volume of commodity construction output has been done.

In other words, it is necessary today to perform all construction-installation work at the project, in other words to create the commodity output, by the scheduled time, and only then to demand payment.

Thus, planning production management activity orients construction workers primarily to the final results of their labor, and the gross indicator, volume of construction-installation, is used only for calculation.

[Question] This means that construction workers today can only receive money for a finished project. It is payment for goods, as they say, but we know that a construction trust does not have a large amount of its own working capital for buying materials, paying workers, and covering other expenditures in the course of construction. How is this problem solved?

[O. Makarova] The contractor could not get by on his own money only in past times either. He used the plant's money, received in the form of advances. Things are organized differently now. When you accept a contract, you go to the bank for credit. When you turn the project over for use and receive its cost from the client, you repay the bank loan. We do not charge much for the service, just 0.5 percent annual interest.

It is a different matter if a contractor does not meet the timetable. The bank does not take back the credit, but the interest rate is increased eight times, to four percent annual interest. The money for this has to be taken from profit made earlier, stimulation funds, and bonuses.

Provision is also made for the case where a building or enterprise has been turned over to the client but settlement of accounts is delayed because of the need for finishing touches or other factors. In this situation the payment for credit rises to 10 percent.

The innovation is having a positive effect. I can give numerous examples where projects have been introduced significantly ahead of schedule. For example, new buildings at the Frunze Garment Production Association imeni VLKSM, the Weaving Mill imeni 8 Marta, the cardiological complex, and many other important buildings and structures were turned over six months ahead of schedule. But experience shows that many organizations still have not been able to overcome the force of inertia and adherence to old, customary ways.

[Question] So despite rigorous economic sanctions, many construction organizations still continue to fall behind on introduction of projects into use or turn them over in incomplete form?

[O. Makarova] Precisely. And they pay for this in rubles. To support this I will cite a few figures. In the first six months of this year Frunze organizations of the Kirghiz SSR Ministry of Construction paid 30,000 rubles (calculated at 0.5 percent annual interest) for use of credit before the planned time for turning over projects; this is a completely miniscule amount. For delays in introduction they paid 13,000 rubles (at four percent). And for cases where they turned over payment documents to the bank for a completed project but delays occurred owing to unfinished aspects or other factors, they paid 86,000 rubles.

One of the organizations which had to be punished monetarily for lack of discipline was SMU-9 [Construction-Installation Administration No 9] of Trust No 2. This organization was obligated to turn over a 160-unit apartment building on Gogol'-Ogonbayev Street in the second half of 1982. The building was turned over on schedule in May, but with major incomplete features. Therefore the construction workers were not able to submit payment documents until 5 August (according to instructions just five days are given for this). This failure to meet the timetable cost them dearly; the construction workers had to pay 57,000 rubles for use of the credit for 60 days after scheduled completion. If this happens two or three more times SMU-9 will be left no working capital of its own.

[Question] Introduction of the new report indicator, commodity output, obligates construction organizations to reorganize their activities. What is required for this?

[S. Voloshchenko] No one will advise new formulas. It is simply necessary to work in an organized, conscientious, rational manner, distributing efforts to insure unconditional completion of projects on time. This has always been what we expected of construction workers. The only difference is that now they have to pay in full for mismanagement and lack of discipline.

People have to be taught to work at the level of contemporary demands. The general contracting construction organization is a complex multifaceted organism. It is essential to create conditions for regular economic education of engineering-technical personnel so that they can carry on engineering preparations for construction in all its stages in a qualified manner.

[O. Makarova] You must keep in mind that on 1 April 1982 rigorous checks on the use of labor resources at start-up and planned construction sites were instituted. Stroybank is now cutting off all forms of credit for unplanned and un-introduced projects, as well as projects that have not received financing. And if construction workers still continue to work at these projects, all the wages paid are viewed as overexpenditures.

The Frunze Home Building Combine exceeded fulfillment of its annual assignment two-fold in the case of a 108-unit apartment building and 32-fold in the case of a 200-person dormitory this year (the client was its own Ministry of Construction). At the same time, the annual assignment at the start-up projects of the Frunze City Executive Committee (a 90-unit apartment building and a 161-unit building in the Vostok-5 development) was fulfilled by just 7.3 and 1.4 percent respectively. In conformity with the new statute the bank stopped the issue of capital to pay wages for the entire combine. It was started again only after the combine performed measures to make up for the overexpenditure permitted.

Mismanagement takes different forms in every different organization. Many construction organizations are frequently in difficult financial straits, while others do not even have money to pay for materials. They often take 60-day short-term loans from the bank to "get through" and pay 10 percent interest. Thus, in the first six months of the year construction workers in Frunze alone

paid 71,000 rubles to the bank for such loans, thereby worsening their own financial affairs.

In short, bank control and its sanctions pursue a single objective: reducing construction time, and prompt (within five days) submission of documents for completion of accounts on a project turned over for use. The quicker contractors and clients assimilate this truth, the more stable and solvent their financial situation will be.

[Question] The new report indicator, commodity output, apparently stimulates concern for accelerating the introduction of projects into use not only for the contractor but also for other participants in the construction process, namely the client and the planner. Is this true?

[S. Voloshchenko] In conformity with existing statutes commodity construction output is above all an indicator which is planned for the contractor. For the client it is not paramount at the present time. I believe that this situation will be corrected and then the client and the contractor will be monetarily accountable for failure to introduce projects on time.

As for planning organizations, they switched to the indicator of "commodity planning output" in 1981, just like the construction workers. The institutes receive final payment for a completed plan from the client 45 days after the documents are produced. During this time the client and the contractor must carefully check the quality of the planning and estimate documents and the accuracy of the estimated cost of commodity construction output, because this cost will not be changed during the entire period of construction.

I would like to emphasize that refining the economic mechanism will continue in construction. We have already worked out instructions on determining labor productivity by normative conditional net output.

Planning by normative conditional net output will, it appears, be instituted in 1983. But preparations for work in this new way must be done now.

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IMPROVED RURAL CONSTRUCTION COMBINES' PERFORMANCE SOUGHT

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[Article by B. Ya. Ionas, doctor of economic sciences, I. M. Sudbinin, candidate of technical sciences, and L. V. Bazarov, engineer-economist: "Improve the Performance of Rural Construction Combines"]

[Text] The historic decisions taken by the May (1982) Plenum of the CPSU CC, the implementation of the USSR Food Program, as approved by the Plenum, require from builders considerable improvement in the effectiveness of work in constructing all the facilities of the agro-industrial complex. There is also considerable growth in rural construction. Thus, the USSR Ministry of Rural Construction--the principal contractor for state rural construction, as provided for by the decree of the CPSU CC and the USSR Council of Ministers entitled "On Measures for Further Improving Housing, Communal-Everyday, and Socio-Cultural Living Conditions of the Rural Population," dated 24 May 1982--must, by the end of 1990, increase the volume of work on the construction of facilities in rural areas up to 7 billion rubles, or by 50 percent, as compared with 1981. In order to do this, it is necessary to carry out measures to develop the material-technical base of sub-departmental construction and installation organizations. Large problems in connection with this are confronting the rural construction combines. Today it can already be stated with confidence that the problems of increasing the volumes of rural contractual construction can be solved basically by means of increasing the capacity of the rural construction combines.

Rural construction combines permit us to ensure most fully the coordination between the industrial and the construction spheres in industrialized rural construction, to ensure the growth of labor productivity by means of transferring the labor-intensive general-construction and finishing operations to plant conditions and the reduction to a minimum of losses in working time for organizational reasons by means of the widespread introduction of assembly-line construction methods.

At the present time a branched network of rural construction combines has been created in the rural areas. As of the beginning of 1982 the country had 132 rural construction combines. Of these 52 are within the system of the USSR Ministry of Construction, 68--in inter-kolkhoz construction organizations, and 12--within Glavmosoblstroy, the USSR Ministry of Construction, and the USSR Ministry of Land Reclamation and Water Resources. The greatest number of SSK's [rural construction combines] are in the RSFSR Ministry of Rural Construction and the Roskolkhozstroy Association.



Within the USSR Ministry of Construction during the period from 1976 through 1981 the number of combines almost quadrupled; moreover, at least half of them were organized during the years 1979--1981. Out of 52 SSK's which were in operation by the beginning of 1982 within the Ministry, 13 have specialized in home building, 5 in erecting rural production buildings, and 34 are complex, i. e., they are engaged in housing and civil construction as well as production construction.

The principal number of SSK's within the system of the inter-kolkhoz construction organizations was created during the course of 1978--1980; out of 68 combines, 18 have specialized in home building, 20--in rural production construction, while 30 are of the complex type.

Nevertheless, the proportion of operations carried out by the rural construction combines within the total program of rural construction is still very small. For example, the proportion of the operational volumes carried out by these organizations within the total volume of the construction and installation operations of the USSR Ministry of Rural Construction during 1981 amounted to only 5.2 percent. The situation is similar with regard to the SSK's within the Roskolkhozstroy Association.

The rural construction combines are still far from fully utilizing the potential opportunities granted to combination-type work in industrialized construction. Despite the fact that the growth rate of the annual work volumes in the SSK's is higher than in the rural general-construction organizations, the average volume of work performed by individual combines is extremely low. For example, within the USSR Ministry of Construction during 1981 it amounted to 4.8 million rubles. Moreover, the level of utilization of the industrial base was only 50 percent.

The situation which has taken shape was the consequence of a whole series of social, technical, and organizational causes, bringing about an unsatisfactory production-management performance. They include an acute shortage of manpower, particularly in SSK's with people tending to move toward the large cities; the unsuitability of enterprises for the construction industry, on the basis of which rural construction combines were created and are operating at the present time, to meet the demands made on them as the production base of the combine; the change in the products list of the buildings being built by the combine in comparison with the technical and economic specifications which were provided and in the designs of the production base (in particular, increasing the proportion of housing and civil rural construction and, above all,--that of farmstead-type houses); the lack in a number of regions of prospective plans regarding the need for rural buildings for various purposes; insufficiently worked-out systems of inter-relations between the SSK's and the general-construction rural trusts; lack of improvement in the system of paying wages to the management, engineers, and technicians of the SSK's, etc.

Among the complex of measures aimed at increasing the effectiveness of the SSK's' performance, which, to the greatest extent, influence the workload of the combine and the utilization of the capacity of its production base, the principal, in our opinion, are the following two. These are the working out of the products list of buildings and structural components, taking into consideration the capabilities of the combine's industrial base and the needs of the given region; also the formation and development of the combine's construction sphere.

In solving the problems of increasing the workloads of the SSK's principal attention must be accorded to expanding the products list of the buildings being erected by the efforts of the SSK's. This work must be multi-level and provide, within the limits of the series of items adopted at the combine, for an increase in the number of buildings for basic and auxiliary purposes, as well as structural components which can be turned out by the SSK's production base without any essential restructuring of production. The degree of effectiveness in solving this problem will depend on how profoundly we work out the problems of unifying the volume-planning and design solutions of buildings, as well as the level of flexibility of the technological process of turning out complete sets of items.

Work on unifying the volume-planning and design solutions for agricultural production buildings ought to be conducted along the following two lines: intra-type and inter-type. At the present time in agricultural construction the combines' efforts are being used to construct buildings, as a rule, for basic production purposes and therein of a limited products list. A definite amount of positive experience has already been accumulated in re-working standard designs, taking into consideration the technology of production adopted at specific SSK's. Thus, for the Saratov SDSK /Rural Home-Building Combine/ of Roskolkhozstroy, with the active participation of the design bureau functioning within the combine, the Series 25 designs were re-worked with an integration of the parts. As a supplement to the series, 23 designs were worked out, included those for farmstead-type homes. Thanks to the work which has been conducted, the combine's production base can turn out 20 variants of buildings for housing and cultural-everyday purposes.

A plan has been developed for an all-purpose agricultural building for the SSK's of Glavmosoblstroy. Designs are being worked out for basic and auxiliary-purpose agricultural buildings for construction in Leningrad Oblast in a pre-assembled variant from the structural components of the Gatchinsk SSK, which will allow the combine to produce items and build up to 60 types of buildings.

The TsNIIEPsel'stroy /Central Scientific Research Institute for Economic Planning of Rural Construction/, in conjunction with the institutes of USSR Gosstroy and the USSR Ministry of Agriculture, is conducting constant work on further standardizing the design solutions of buildings, increasing their pre-assembled factor and improving structural components, including those for use in SSK's.

As an example one may cite the work on selecting designs with good prospects and re-working them, taking into account the use of the Slutsk SSK's structural components. This work, which is being carried out jointly with the Belgiprosel'khos and the PKB /Planning and Design Bureau/ of the Belorussian SSR Ministry of Agricultural Construction, should be completed basically in 1982. Subsequently, based on re-worked designs, a unified catalog of the Slutsk SSK's standardized industrial items will be developed.

In a number of cases, however, in order to ensure a stable workload for the SSK's, it is insufficient merely to expand the products list of buildings within the limits of an earlier adopted project specialization. This is primarily a matter of SSK's specializing in agricultural production construction. In such cases a solution to the problem can only be attained by means of converting a combine from a specialized to a comprehensive one. Serving as an example of this is the experience of the Gatchinsk SSK, which, after conducting the appropriate modernization,

has begun to construct buildings for cultural and everyday-service purposes in addition to agricultural buildings. The Mirgorod and North Caucasian SSK's, which had previously specialized in production-type agricultural construction, have also been converted to comprehensive-type operations.

Another aspect of the problem of increasing the workload of the SSK's is connected with determining the optimum form of contractual activity for each combine. Up to the present time some of the SSK's have limited their activities in the construction sphere to the installation of structural components. In the first place, this has to do with combines which are engaged in agricultural production construction. For example, the Slutsk SSK, which has at its disposal a production base for the construction of 280,000 sq. m of area of agricultural buildings, had in 1982 a planned volume of construction and installation operations amounting to 8 million rubles, i. e., less than 30 rubles per sq. m of production area, within an average calculated amount equal to 60 rubles. In carrying out the full complex of operations on the above-ground portion of buildings on all projects, the combine, with the existing capacity of its industrial base could provide a ready-made construction output amounting to 15--16 million rubles annually.

A substantial influence on the nature of an SSK's contractual activity is exerted by the formation of its structural part, as well as by the legal status of its construction sub-divisions. As studies which have been conducted show, the structural part of an SSK can be formed by the following three ways: by means of creating new construction sub-divisions (PMK's Mobile Mechanized Columns and sections), transferring into the body of a combine the functioning PMK's from the construction trusts (territorial administrations, inter-kolkhoz associations), and isolating out of the body of functioning PMK's individual construction sections and transferring them to SSK jurisdiction.

The first way can be recommended in cases where the creation of an SSK is brought about by a significant growth in the volumes of construction and installation operations with respect to any form of agricultural construction, whereas the PMK's functioning in this region are loaded with work to their utmost limits. At the present time this way of forming the construction part of a combine is employed relatively rarely, inasmuch as the majority of general-construction PMK's have insufficient workloads.

The transfer to rural construction combines of functioning PMK's from the body of construction trusts can be recommended in the following two cases: if the PMK being transferred even before the creation of the SSK has specialized in the construction of fully pre-assembled buildings, accepted in the combine's products list, or if, in addition to the general-construction PMK being transferred to the combine, there is functioning within the region still another general-construction organization under the same jurisdictions as the PMK being transferred, which has an insufficient workload and is capable of carrying out additional amounts of work. In many administrative regions, however, the general-construction PMK is the sole state general-contracting organization performing construction in rural localities; hence, the transfer of such PMK's to the body of an SSK is not feasible.

The third way makes it possible to retain the network of general-contracting SSK's already existing in the region.

It is feasible to solve the problem of the status of construction sub-divisions, depending on the size of the territory being served by the combine and the degree of remoteness of the construction sub-division from the place where the combine's administrative apparatus is located. Thus, in a zone where the combine's radius of action is less than 50 km it is feasible to have directly subordinate mobile mechanized sections (experience of the Glavmosoblstroy SSK). When the radius of action is more than 50 km, the SSK construction sub-divisions, depending on local conditions, may be represented by directly subordinate mobile mechanized sections or PMK's (with limited economic independence) and by sections subordinate to them. If the SSK's are carrying out construction in several oblasts, such as Slutsk, Kapchagaysk, and Mirgorod, it is feasible to have in each oblast a PMK, accorded the rights for carrying out direct contacts with the general-contracting construction trusts and the oblast organizations.

One of the factors stimulating growth in the volumes of the SSK's construction production is the reflection of the results of their activity in the integrated construction balance. This important economic lever is still being utilized insufficiently. At the beginning of 1982 only 14 out of 52 combines of the USSR Ministry of Rural Construction had a unified construction balance; moreover, six of them had converted to a unified balance only in 1981. Meanwhile, the operational experience of a number of the country's SSK's on a unified construction balance (the Glavmosoblstroy SSK, the Vologda SDSK, and the Mariy SSK of the RSFSR Ministry of Rural Construction, along with the Gatchinsk SDSK of the USSR Ministry of Construction) has confirmed the economic feasibility of utilizing this form of economic management.

It must, however, be borne in mind that in order to convert an SSK to a unified construction balance, we need to have an appropriate preparation of production and, above all, a mastery of the capacity of its production base and, above all, a complete master of its production base's capacity at a level of at least 60--70 percent with and full output of items and with the maximum utilization of them directly for the combine's needs. In the transition to a unified construction balance sheet the industrial balance sheet of the production base must be replaced by an intra-combine cost accounting, which allows us to keep accounts in the sphere of industrial production. Without promulgating these measures, as practical experience has shown, the conversion of SSK's to a unified balance sheet could lead to a worsening of the indicators of its activity.

The presence of potentials for improving the effectiveness of the SSK's performance without substantial capital outlays is testified to by the results of the work carried out in the TsNIIEPsel'stroy in 1982. Promulgation of a complex of measures regarding the technical re-tooling of industrial production within the bounds of operational capacities (pre-outfitting equipment and rigging, specialization of engineering lines, application of effective engineering solutions, etc.), as well as improving the activity of the construction sphere of production (organizing continuous assembly-line construction, using straight-through [?]/brigade-type contracts, etc.) have allowed us to approximately double the volume of construction output by these combines. Thus, with the appropriate technical re-tooling of the functioning workshops of the Mariy SSK's production base, the performance coefficient for item output could rise from 50,000 to 95,000 sq. m (that of precast, reinforced concrete--from 36,000 to 70,000 cu. m), while the volume of construction production could increase from 8.1 million to 14.1 million rubles worth. This would ensure the growth of output per worker for the SSK as a whole from 6,900 to 9,000 rubles

and the obtaining of an annual profit of 700,000 rubles. Analogous results could also be achieved by other combines.

There are other unsolved problems which have a negative influence on the effectiveness of the SSK's performance. One of them is connected with the inter-relations between the SSK's and the general-contract trusts carrying out rural construction in the appropriate zone. In a number of instances conflicts have arisen between the rural construction trusts and the SSK's which are subordinate to them, by virtue of which the trust is not always interested in the growth of amounts of construction production in the combine above the set level. In this connection it seems feasible to examine the question of replacing the local subordination of the SSK by a central one. Moreover, the following, different forms of central SSK subordination are possible: directly to the territorial main administrations or to the republican associations and through the production construction associations of industrialized rural construction.

Remaining as a bottleneck of many SSK's is the work of the auxiliary services and, above all, that of the production-technological outfitting and technological transport, which has a negative effect on the coordination between the industrial and construction spheres of production. At a number of combines insufficient attention is being paid to questions of the plant manufacture of items.

One of the important problems in increasing the effectiveness of SSK activity is the reciprocal coordination of the development of the network of state and inter-kolkhoz combines. At the present time this network is developing in a parallel manner, and this leads frequently to a duplication of production and complicates this solution of the problems of an optimum workload for the combines.

Rational cooperation between the state and inter-kolkhoz SSK's will allow us to reduce within the corresponding region the zone of activity of each of them and to turn out a more limited products list of items while retaining the necessary level of the workload.

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